1. Создайте таблицу logs типа Archive. Пусть при каждом создании записи в таблицах users, catalogs и products в таблицу logs помещается время и дата создания записи, название таблицы, идентификатор первичного ключа и содержимое поля name.

Создаем по триггеру для каждой таблицы:

```
mysql> DROP TABLE IF EXISTS logs;
Query OK, 0 rows affected, 1 warning (0.00 sec)

mysql> CREATE TABLE logs (
    ->   created_at DATETIME NOT NULL,
    ->   name VARCHAR(45) NOT NULL,
    ->   id INT NOT NULL,
    ->   name_value VARCHAR(45) NOT NULL
    -> ) ENGINE = ARCHIVE;
Query OK, 0 rows affected (0.00 sec)

mysql> DROP TRIGGER IF EXISTS log_users;
Query OK, 0 rows affected, 1 warning (0.00 sec)

mysql> delimiter //
mysql> CREATE TRIGGER log_users AFTER INSERT ON users
    -> FOR EACH ROW
    -> BEGIN
    ->   INSERT INTO logs (created_at, name, id, name_value)
    ->   VALUES (NOW(), 'users', NEW.id, NEW.name);
    -> END //
Query OK, 0 rows affected (0.00 sec)

mysql> DROP TRIGGER IF EXISTS log_catalogs;
    -> CREATE TRIGGER log_catalogs AFTER INSERT ON catalogs
    -> FOR EACH ROW
    -> BEGIN
    ->   INSERT INTO logs (created_at, name, id, name_value)
    ->   VALUES (NOW(), 'catalogs', NEW.id, NEW.name);
    -> END //
Query OK, 0 rows affected, 1 warning (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

mysql> DROP TRIGGER IF EXISTS log_products;
    -> CREATE TRIGGER log_products AFTER INSERT ON products
    -> FOR EACH ROW
    -> BEGIN
    ->   INSERT INTO logs (created_at, name, id, name_value)
    ->   VALUES (NOW(), 'products', NEW.id, NEW.name);
    -> END //
Query OK, 0 rows affected, 1 warning (0.01 sec)

Query OK, 0 rows affected (0.02 sec)
```

Проверка по для каждой таблицы:

```
mysql> delimiter ;
mysql> SELECT * FROM users;
+----+---------------+-------------+---------------------+---------------------+
| id | name          | birthday_at | created_at          | updated_at          |
+----+---------------+-------------+---------------------+---------------------+
|  1 | Вася          | 1988-09-17  | 2017-10-20 08:10:00 | 2020-06-24 17:19:37 |
|  2 | Петя          | 1988-09-17  | 2018-10-20 08:10:00 | 2020-06-24 17:20:05 |
|  3 | Валя          | 1987-11-19  | 2020-06-24 17:17:28 | 2020-06-30 00:42:03 |
|  4 | Оксана        | 1987-11-19  | 2020-06-24 17:25:01 | 2020-06-24 17:25:01 |
|  5 | Степа         | 1967-11-19  | 2020-06-24 17:25:01 | 2020-06-24 17:25:01 |
|  6 | Антошка       | 1957-11-19  | 2020-06-24 17:25:01 | 2020-06-24 17:25:01 |
|  7 | Нина          | 1987-12-09  | 2020-06-24 17:25:01 | 2020-06-24 17:25:01 |
+----+---------------+-------------+---------------------+---------------------+
7 rows in set (0.00 sec)

mysql> SELECT * FROM logs;
Empty set (0.00 sec)

mysql> INSERT INTO users (name, birthday_at)
    -> VALUES ('Константин', '1921-01-02');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM users;
+----+---------------------+-------------+---------------------+---------------------+
| id | name                | birthday_at | created_at          | updated_at          |
+----+---------------------+-------------+---------------------+---------------------+
|  1 | Вася                | 1988-09-17  | 2017-10-20 08:10:00 | 2020-06-24 17:19:37 |
|  2 | Петя                | 1988-09-17  | 2018-10-20 08:10:00 | 2020-06-24 17:20:05 |
|  3 | Валя                | 1987-11-19  | 2020-06-24 17:17:28 | 2020-06-30 00:42:03 |
|  4 | Оксана              | 1987-11-19  | 2020-06-24 17:25:01 | 2020-06-24 17:25:01 |
|  5 | Степа               | 1967-11-19  | 2020-06-24 17:25:01 | 2020-06-24 17:25:01 |
|  6 | Антошка             | 1957-11-19  | 2020-06-24 17:25:01 | 2020-06-24 17:25:01 |
|  7 | Нина                | 1987-12-09  | 2020-06-24 17:25:01 | 2020-06-24 17:25:01 |
|  8 | Константин          | 1921-01-02  | 2020-08-04 16:32:08 | 2020-08-04 16:32:08 |
+----+---------------------+-------------+---------------------+---------------------+
8 rows in set (0.00 sec)

mysql> SELECT * FROM logs;
+---------------------+-------+----+----------------------+
| created_at          | name  | id | name_value           |
+---------------------+-------+----+----------------------+
| 2020-08-04 16:32:08 | users |  8 | Константин           |
+---------------------+-------+----+----------------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT * FROM catalogs;
+----+----------------------+
| id | name                 |
+----+----------------------+
|  1 | Процессоры           |
|  2 | Мат.платы            |
|  3 | Видеокарты           |
+----+----------------------+
3 rows in set (0.00 sec)

mysql> INSERT INTO catalogs (name)
    -> VALUES ('Аудиокарты');
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM catalogs;
+----+----------------------+
| id | name                 |
+----+----------------------+
|  1 | Процессоры           |
|  2 | Мат.платы            |
|  3 | Видеокарты           |
|  4 | Аудиокарты           |
+----+----------------------+
4 rows in set (0.00 sec)

mysql> SELECT * FROM logs;
+---------------------+----------+----+----------------------+
| created_at          | name     | id | name_value           |
+---------------------+----------+----+----------------------+
| 2020-08-04 16:32:08 | users    |  8 | Константин           |
| 2020-08-04 16:34:23 | catalogs |  4 | Аудиокарты           |
+---------------------+----------+----+----------------------+
2 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM products;
+----+-------------------------+-------------+----------+------------+---------------------+---------------------+
| id | name                    | description | price    | catalog_id | created_at          | updated_at          |
+----+-------------------------+-------------+----------+------------+---------------------+---------------------+
|  1 | Intel Core i3-8100      |             |  7890.00 |          1 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  2 | Intel Core i5-7400      |             | 12700.00 |          1 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  3 | AMD FX-8320E            |             |  4780.00 |          1 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  4 | AMD FX-8320             |             |  7120.00 |          1 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  5 | ASUS ROG MAXIMUS X HERO |             | 19310.00 |          2 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  6 | Gigabyte H310M S2H      |             |  4790.00 |          2 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  7 | MSI B250M GAMING PRO    |             |  5060.00 |          2 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  8 | test                    | NULL        |     1.00 |          1 | 2020-08-03 16:03:17 | 2020-08-03 16:03:17 |
|  9 | test                    | test        |     2.00 |          2 | 2020-08-03 16:04:29 | 2020-08-03 16:04:29 |
+----+-------------------------+-------------+----------+------------+---------------------+---------------------+
9 rows in set (0.00 sec)

mysql> INSERT INTO products (name, description, price, catalog_id)
    -> VALUES ('Некоторая аудиокарта', '', 1000, 4);
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM products;
+----+-----------------------------------------+-------------+----------+------------+---------------------+---------------------+
| id | name                                    | description | price    | catalog_id | created_at          | updated_at          |
+----+-----------------------------------------+-------------+----------+------------+---------------------+---------------------+
|  1 | Intel Core i3-8100                      |             |  7890.00 |          1 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  2 | Intel Core i5-7400                      |             | 12700.00 |          1 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  3 | AMD FX-8320E                            |             |  4780.00 |          1 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  4 | AMD FX-8320                             |             |  7120.00 |          1 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  5 | ASUS ROG MAXIMUS X HERO                 |             | 19310.00 |          2 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  6 | Gigabyte H310M S2H                      |             |  4790.00 |          2 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  7 | MSI B250M GAMING PRO                    |             |  5060.00 |          2 | 2020-06-30 00:00:31 | 2020-06-30 00:01:06 |
|  8 | test                                    | NULL        |     1.00 |          1 | 2020-08-03 16:03:17 | 2020-08-03 16:03:17 |
|  9 | test                                    | test        |     2.00 |          2 | 2020-08-03 16:04:29 | 2020-08-03 16:04:29 |
| 10 | Некоторая аудиокарта                    |             |  1000.00 |          4 | 2020-08-04 16:37:46 | 2020-08-04 16:37:46 |
+----+-----------------------------------------+-------------+----------+------------+---------------------+---------------------+
10 rows in set (0.00 sec)

mysql> SELECT * FROM logs;
+---------------------+----------+----+--------------------------------------+
| created_at          | name     | id | name_value                           |
+---------------------+----------+----+--------------------------------------+
| 2020-08-04 16:32:08 | users    |  8 | Константин                           |
| 2020-08-04 16:34:23 | catalogs |  4 | Аудиокарты                           |
| 2020-08-04 16:37:46 | products | 10 | Некоторая аудиокарта                 |
+---------------------+----------+----+--------------------------------------+
3 rows in set (0.00 sec)
```

2. (по желанию) Создайте SQL-запрос, который помещает в таблицу users миллион записей.

```
mysql> delimiter //
mysql> CREATE PROCEDURE insert_million_users()
    -> BEGIN
    ->   DECLARE i INT DEFAULT 1;
    ->   WHILE i <= 1000000 DO
    ->     INSERT INTO users(name, birthday_at) VALUES (CONCAT('user_', i), '2000-01-01');
    ->     SET i = i + 1;
    ->   END WHILE;
    -> END //
Query OK, 0 rows affected (0.00 sec)
```

Выполняется крайне долго

```
mysql> SELECT * FROM users order by id desc limit 1;
+---------+--------------+-------------+---------------------+---------------------+
| id      | name         | birthday_at | created_at          | updated_at          |
+---------+--------------+-------------+---------------------+---------------------+
| 1000008 | user_1000000 | 2000-01-01  | 2020-08-04 17:28:18 | 2020-08-04 17:28:18 |
+---------+--------------+-------------+---------------------+---------------------+
1 row in set (0.01 sec)
```

```
mysql> SELECT COUNT(id) FROM users;
+------------+
| COUNT(id) |
+------------+
|    1000008 |
+------------+
1 row in set (0.28 sec)
```